Generic Stormwater and Low Impact Development Ordinance

Section 1. Introduction

(a) *Purpos*e.
(1) The board of supervisors desires to protect the safety, welfare and property of county residents and businesses, and the quality of waters within the county. The board recognizes that development tends to degrade these waters through increased flooding, stream channel erosion, and the transport and deposition of waterborne pollutants. This degradation is due, in part, to increased stormwater runoff as property is developed. The regulation of stormwater runoff from developments can control the negative impacts of generating increased flooding, erosion, and nonpoint source pollutant runoff. Hence, the board has determined that it is in the public interest to establish requirements, which regulate the discharge of stormwater runoff from developments.

(2) The purpose of this chapter is to establish minimum stormwater management requirements which:

Protect the safety and welfare of county residents and businesses;
Reduce flood damage to property;
Minimize the impacts of increased stormwater runoff from new land development;
Maintain the adequacy of existing and proposed culverts, bridges, dams, and other structures;
Prevent, to the greatest extent practicable, an increase in nonpoint source pollution;
Maintain the integrity of stream channels for their biological functions and drainage;
Minimize the impact of development upon stream erosion;
Preserve and protect water supply facilities from increased flood discharges, stream erosion, and nonpoint source pollution.

(b) *Statutory authorit*y. This chapter is enacted in accordance with the Stormwater Management Act (section 10.1-603 et seq. of the Code of Virginia, (1950) as amended).

(c) *Conflict of provisions.* In any case where the requirements of this chapter conflict with any other provisions of the County Code, whichever imposes the more stringent restrictions shall apply. Approvals issued pursuant to this chapter do not relieve the applicant of the responsibility to secure applicable federal, state, or local permits or approvals for regulated activities. When any referenced code citation is amended, the amended code shall be the applied standard.

(d) *Severability.* If any part of this chapter, or application thereof of this chapter to any person, property, or circumstance is held invalid by a court of the competent jurisdiction, the remainder of this chapter and its application to other persons, property or circumstances shall not be affected.

(e) *Administratio*n. This chapter shall be administered and enforced by the program administrator. The program administrator, or designee, upon proper identification, shall

have the right to enter upon any land for the purpose of making an inspection or acquiring information to determine whether or not the property conforms to the requirements of this chapter.

(f) *Applicabilit*y.

(1) Except as provided for in subsection (f)(2) of this section, all land development projects within the County shall comply with the requirements of this chapter.

(2) The following activities shall be exempt from this chapter:

a. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Code of Virginia.

b. Tilling, planting, or harvesting of agricultural, horticultural, or forest crops.

c. Linear development projects, provided that (i) less than one acre of land will be disturbed per outfall or watershed, (ii) there will be insignificant increases in peak flow rates, and (iii) there are no existing or anticipated flooding or erosion problems downstream of the discharge points.

d. Single-family detached residences separately built and not part of a subdivision, including additions or modifications to existing single-family detached residential structures (provided that all applicable requirements of Section 28-62 (Chesapeake Bay Preservation Area Overlay Districts[1]) of the Code are met.

e. Structures considered ancillary to single-family detached and semi-detached residences, duplexes, and townhouses, including, but not limited to, garages, decks, patios, and barns (provided that all applicable requirements of Section 28-62 (Chesapeake Bay Preservation Area Overlay Districts) of the Code are met[1].)

f. Land development projects that disturb less than two thousand five hundred (2,500) square feet of land.

(g) Incorporation by reference.

For the purpose of this chapter, the following documents are incorporated by reference:

1. Virginia Stormwater Management Handbook, Volumes I and II, prepared by the Virginia Department of Conservation and Recreation dated 1999 and subsequent modifications.

2. Low-Impact Development Design Strategies: An Integrated Design Approach, United States Environmental Protection Agency, Office of Water, EPA 841-B-00-003 dated June 1999 and subsequent modifications and updates thereof.

3. Low-Impact Development Hydrologic Analysis, United States Environmental Protection Agency, Office of Water, EPA 841-B-00-002 dated June 1999 and subsequent modifications.

[1] Applicable in Counties governed by the Chesapeake Bay Act.

(h) *Definitions.*
Adequate channel means a natural or manmade channel, which is capable of conveying runoff from a ten-year storm without overtopping its banks and from a two-year storm without eroding. A pipe or storm sewer system is adequate if runoff from a ten-year storm is contained within the system.

Applicant means any person submitting a stormwater management plan for approval.

As built plan means a set of engineering or site drawings that adequately depict stormwater management facilities and stormwater drainage systems as they were actually constructed.

Best management practice (BMP) means a structural or nonstructural practice, which is designed to minimize the impacts of development on surface or groundwater systems.

Channel means a natural stream or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

Development means a tract of land developed or to be developed as a unit under single ownership or unified control that is to be used for any business or industrial purpose or is to contain three (3) or more residential dwelling units.

Flooding means a volume of water that is too great to be confined within the banks or walls of the stream, water body, or conveyance system, and that overflows onto adjacent lands, causing or threatening damage.

Floodplain means those areas adjoining a river, stream, channel, bay or lake that are subject to inundation by waters of the 100-year flood.

Hotspot means an area where the land use or activities are considered to generate runoff with concentrations of pollutants in excess of those typically found in stormwater.

Integrated management practice (IMP) means low impact development microscale and distributed management techniques used to maintain predevelopment site hydrology. Integrated Management practices shall include biorentention facilities, dry wells, filter/buffer strips, grassed swales, rain barrels, cisterns, infiltration trenches and amended soils as specified in the Low-Impact Development Design Manuals.

Land development or *land development project* means a manmade change to the land surface that potentially changes its runoff characteristics.

Linear development project means a land development project that is linear in nature such as, but not limited to, (i) the construction of electric and telephone utility lines, and natural gas pipelines; (ii) construction of tracks, rights-of-way, bridges, communication facilities and other related structures of a railroad company; and (iii) highway construction projects.

Low-impact development means a hydrologically functional site design with pollution prevention measures to reduce impacts and compensate for development impacts on hydrology and water quality.

Low-Impact Development Design Manuals refer to the Low-Impact Development Design Strategies: An Integrated Design Approach Manual and the Low-Impact Development Hydrologic Analysis Manual as incorporated by reference in this chapter.

Maintenance agreement means a legally binding agreement between the landowner of a stormwater management structure and the County outlining each party's responsibility towards the operation, maintenance and general upkeep of said structure.

Maintenance plan means a component of the stormwater management design plan describing the stormwater management structures at the land development project and identifying maintenance items that will be performed by the landowner to ensure proper functioning of said structures.

Nonpoint source pollution means pollution consisting of constituents such as sediment, nutrients, and organic and toxic substances from diffuse sources, such as runoff from urban land development and use.

*Nonstructural stormwater practi*ce means a stormwater runoff treatment technique, which uses natural measures to reduce pollutant levels, does not require extensive construction efforts and/or promotes pollution reduction by eliminating the pollutant source.

Off-site stormwater management facility means a stormwater management facility located outside the subject property boundary described in the stormwater management design plan for the land development activity.

On-site stormwater management facility means a stormwater management facility located within the subject property boundary described in the stormwater management design plan for the land development activity.

Overcompensation means the extra water quantity or quality control provided at one site discharge point in order to allow another discharge point(s) to go uncontrolled.

Person means any firm, association, organization, partnership, trust, company, or corporation, as well as an individual.

Post-development refers to the conditions that reasonably may be expected or anticipated to exist after completion of the land development activity on a specific site or tract of land.

Pre-development refers to the land condition that exists at the time that plans for the land

development are submitted to the locality. Where phased development or plan approval occurs (preliminary grading, roads, and utilities, etc.), the existing land use at the time the first item is submitted shall establish predevelopment conditions.

Pretreatment means the techniques employed in a stormwater management plan to provide storage or filtering to help trap course materials before they enter the stormwater BMP. Pretreatment is required on some BMPs to help avoid costly maintenance.

Program administrator means the county administrator or his designee.

Redevelopment means the process of developing land that is or has been previously developed.

Regional stormwater management facility (regional facility) means a facility or series of facilities designed to control stormwater runoff from a specific watershed and for one or more developments.

Runoff means that portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

Stormwater drainage means the collection and conveyance of storm and other surface flows through the land development project in a manner to prevent flooding of structures and associated properties and erosion of channels. Stormwater drainage systems shall include stormwater conveyance channels, storm sewers and culverts.

Stormwater management means the collection, conveyance, storage, treatment, and disposal of stormwater runoff in a manner to prevent accelerated channel erosion, increased flood damage, and degradation of water quality.

Stormwater management concept plan means a generalized plan provided with the preliminary plan of subdivision or preliminary site development plan describing how stormwater runoff through and from a land development project will be conveyed and controlled.

Stormwater Management Design Manuals refer to the Virginia Stormwater Management Handbook *(and County design manual, if applicable*) as incorporated by reference in this chapter.

Stormwater management design plan means a set of drawings and supporting documents that comprises all of the information and specifications for the systems and structures that will be used to convey and control stormwater runoff in accordance with the requirements of this chapter.

Stormwater management extended detention basin (extended detention basin, dry pond) means a stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure over a specified period of time to a

downstream conveyance system for the purpose of water quality enhancement or stream channel erosion control. Since an extended detention facility impounds runoff only temporarily, it is normally dry during nonrainfall periods.

Stormwater management facility means a device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release, or the velocity of flow.

Stormwater management filtering system means a stormwater treatment practice that utilizes an artificial media to filter out pollutants. Filtering systems shall include bioretention facilities and sand filters, as specified in the Virginia Stormwater Management Design Manuals.

Stormwater management infiltration facility means a stormwater management facility that temporarily impounds runoff and discharges it via infiltration through the surrounding soil. Infiltration facilities shall include infiltration basins, infiltration trenches, dry wells and porous pavement as specified in the Stormwater Management Design Manuals.

Stormwater management open channel system means a vegetated open channel designed to remove pollutants from stormwater runoff by filtration through grass and infiltration into the soil.

Stormwater management retention basin (retention basin, wet pond) means a stormwater management facility that temporarily impounds runoff and discharges it through a hydraulic outlet structure to a downstream conveyance system, and also includes a permanent impoundment. Therefore, it is normally wet, even during nonrainfall periods.

Stormwater management wetland means an area intentionally designed and created to emulate the water quality improvement function of wetlands for the primary purpose of removing pollutants from stormwater.

Watershed means a defined land area drained by a river, stream or drainage way, or system of connecting rivers, streams or drainage ways such that all surface water within the area flows through a single outlet.

Section 2. Stormwater management technical criteria.

(a) *General*
(1) Site designs shall minimize the generation of stormwater and maximize pervious areas for stormwater treatment. Structural and nonstructural infiltration BMPs shall be encouraged to provide stormwater quality and quantity control and groundwater recharge.

(2) Natural channel characteristics shall be preserved to the maximum extent practicable.

(3) Residential, commercial or industrial developments shall apply these stormwater management criteria to land development as a whole. Individual residential lots in new subdivisions shall not be considered separate land development projects, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

(4) The design criteria, methodologies and construction specifications for all stormwater management facilities, and structural and nonstructural BMPs shall be those of the Stormwater Management Design Manuals. The design shall be certified by a professional licensed in Virginia to perform such work.

(5) Pre-development and post-development runoff rates shall be verified by calculations that are consistent with good engineering practices and methodologies found in the Stormwater Management Design Manuals.

(6) Outflows from a stormwater management facility shall be discharged to an adequate channel, and velocity dissipaters shall be placed at the outfall of all stormwater management facilities and along the length of any outfall channel as necessary to provide a nonerosive velocity of flow from the facility to a channel.

(7) Safety measures shall be incorporated into the design of all stormwater management facilities in accordance with the Stormwater Management Design Manuals. These measures may include but are not limited to safety ledges, fencing, warning signs, antivortex devices, stadia rod indicating depth at the lowest point and outlet structures designed to limit public access.

(8) Stormwater management facilities shall be designed to minimize the propagation of insects, particularly mosquitoes, provided that design features proposed will not negatively impact the functions of the facility.

(9) Impounding structures that are not covered by the Virginia Impounding Structures Regulations (4VAC50-20-10, et.seq.) shall be engineered for structural integrity during the 100-year storm event in accordance with the Stormwater Management Design Manuals.

(10) All stormwater management facilities shall have a maintenance plan and agreement, which identifies the owner and responsible party for carrying out the maintenance plan in accordance with Section 5 of this chapter.

(11) Storm drainage easements shall be required on lots or parcels where the conveyance, storage or treatment of stormwater is proposed or can reasonably be expected to occur. These drainage easements shall be identified on the plat of record prior to recordation in accordance with the Stormwater Management Design Manuals.

(12) Notwithstanding any other provisions of this chapter or waivers or exemptions thereto, land development projects shall comply with the Erosion and Sediment Control Code/Ordinance and Chesapeake Bay Preservation Area Code /Ordinance[1].

(13) Construction of stormwater management facilities or modifications to channels shall comply with all applicable laws and regulations.

(14) Evidence of all applicable federal and state permits required for construction of the facility shall be presented to the program administrator prior to issuance of a grading permit, including but not limited to US Army Corps of Engineers, Virginia Department of Environmental Quality's Virginia Water Protection Permit (VWP) and the Virginia Pollutant Discharge Elimination System Permit (VPDES).

(15) If stormwater management facilities are provided through which water passes at times other than rainfall, the program administrator shall be consulted to ensure the appropriateness of design prior to submission of the stormwater management design plan. This applies to all onstream or online stormwater management facilities.

(16) Construction of stormwater management impoundment structures within a Federal Emergency Management Agency (FEMA) designated floodplain shall be avoided to the extent possible.

(b) *Water quality*

(1) For land development, the post-developed stormwater runoff shall be treated by an appropriate technology-based water quality BMP(s) based on the imperviousness of the drainage area as specified in the Stormwater Management Design Manuals.

(2) The selected water quality BMP(s) shall be located, designed and maintained to perform at or higher than the target pollutant removal efficiency identified in the Stormwater Management Design Manuals.

(3) The following water quality BMPs /IMPs may be used to satisfy the applicable water quality control requirements in this subsection:

a. Stormwater management retention and extended detention basins;
b. Stormwater management wetlands;
c. Stormwater management infiltration facilities;
d. Stormwater management filtering systems;
e. Stormwater management open channel systems;
f. Low-impact development site planning and integrated management practices

g. Regional stormwater management facilities.

(4) Innovative and alternative water quality BMPs may be allowed for land development at the discretion of the Program Administrator subject to pollutant removal efficiencies recognized by the Virginia Department of Conservation and Recreation.
(5) When a land development project contains or is divided by multiple drainage areas, water quality BMPs/IMPs shall be evaluated for each drainage area. If a portion of the site is left uncontrolled or a portion of the site is treated with a lower than target pollutant removal efficiency BMP, the program administrator may require performance-based water quality calculations to verify total site water quality compliance in accordance with methodologies in the Stormwater Management Design Manuals. Overcompensation of water quality shall be in accordance with requirements outlined in the Stormwater Management Design Manuals.
(6) Water quality BMPs shall have an acceptable form of water quality pretreatment in accordance with pretreatment requirements found in the Stormwater Management Design Manuals.
(7) Stormwater discharges from stormwater hotspots may require the use of specific structural BMPs and pollution prevention practices. Stormwater from a hotspot shall not be infiltrated without proper pretreatment.
(8) All redevelopment projects not served by an existing water quality BMP shall reduce post-development pollutant loads to 90% of pre-development levels through the reduction of site impervious areas or the application of water quality BMPs in accordance with performance-based criteria in the Stormwater Management Design Manuals. For redevelopment of any property that is currently and adequately served by one or more water quality BMPs, the post-development pollution load shall not exceed the pre-development pollution load.

(c) *Stream channel erosio*n.
(1) Properties and receiving waterways downstream of any land development project shall be protected from erosion and damage due to increases in volume, velocity and frequency of peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this subsection.
(2) The land development project shall provide 24-hour extended detention of runoff generated by the one-year, 24-hour duration storm.
(3) The extended detention storage volume, release rate and orifice size shall be determined using the design methods in the Stormwater Management Design Manuals.
(4) Stream channel erosion impacts to receiving streams due to land development projects shall be addressed for each point of discharge from the development project.
(5) In lieu of extended detention of the one-year storm, land development may provide channel improvements, nonstructural practices, low impact development site design or other measures satisfactory to the program administrator to prevent channel erosion.

(d) *Flooding.*
(1) Downstream properties and waterways shall be protected from localized flooding due to increases in volume, velocity and peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this subsection.

(2) The 10-year storm post-developed peak rate of runoff from the development site shall not exceed the 10-year pre-developed rate.
(3) The design storm shall be defined as either a twenty-four hour storm using the rainfall distribution recommended by the U.S. Natural Resources Conservation Service (i.e., Soil Conservation Service) when using Soil Conservation Service methods or as the storm of critical duration that produces the greatest required storage volume at the site when using a design method such as the Rational Method. Selection of appropriate hydrology method and corresponding calculations shall be in accordance with requirements of the Stormwater Management Design Manuals.
(4) For the purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if lands are pastures, lawns or parks), with good cover (if lands are woods), or with conservation treatment (if lands are cultivated); regardless of conditions existing at time of computation.
(5) Determination of flooding impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed, which also contributes to that point of discharge. Overcompensation of 10-year peak controls shall be in accordance with requirements of the Stormwater Management Design Manuals.
(6) Linear development projects shall not be required to control post-developed stormwater runoff for flooding, except in accordance with watershed or regional stormwater management plan.

(e) *Low-impact development site*s.
(1) The use of low-impact development site planning and integrated management practices shall be encouraged to control stormwater runoff at the source and more closely approximate pre-development runoff conditions.
(2) Low-impact development stormwater management design plans developed consistent with the requirements of this subsection shall satisfy the water quality and quantity performance criteria of subsections (b), (c) and (d).
(3) The design criteria, hydrologic analysis and computational procedures for low-impact development stormwater management design plans shall be those of the Low-Impact Development Design Manuals.
(4) Low-impact development stormwater management design plans shall not conflict with existing State or County laws, ordinances, regulations or policies.
(5) Storm drainage easements shall be recorded to identify the locations of integrated management practices on lots or parcels. The property owner shall not remove or structurally alter integrated management practices without prior written approval from the program administrator.

(f) *Regional stormwater management facilities.* (*Areas using regional SWM facilities*)
(1) Land development projects may/shall implement regional stormwater management facilities identified in adopted stormwater management plans in accordance with requirements in the Stormwater Management Design Manuals and regulations adopted by the Board of Supervisors.
(2) When a land development project desires to install a regional stormwater management

facility at a location not identified in an adopted stormwater management plan, the program administrator shall require submission of a comprehensive watershed study. The watershed study shall include sufficient information to evaluate impacts of the proposed facility on runoff rates, volumes and velocities, and environmental characteristics of the affected areas.

(3) Land development projects served by an existing or planned regional stormwater management facility shall pay a pro-rata share of the cost of implementing the facility in accordance with regulations adopted by the Board of Supervisors.

Section 3. Stormwater drainage technical criteria.

(a) All land development projects shall provide for a system of adequate stormwater drainage. The system shall be based on sound engineering practices and shall be certified as adequate to provide for the necessary stormwater drainage by a professional licensed in Virginia to perform such work.
(b) Stormwater drainage systems shall be designed and constructed in accordance with the Stormwater Management Design Manuals. Design details for stormwater drainage systems shall be identified on the stormwater management design plan.
(c) Stormwater drainage systems shall be designed such that properties over which surface waters are conveyed, from the development site to discharge point(s), are not adversely affected. The increase in runoff volume caused by the development shall not aggravate an existing drainage problem or cause a drainage problem. A downstream drainage system may be created, expanded or improved in combination with or in lieu of on-site stormwater detention if approved by the program administrator.
(d) Stormwater drainage systems and stormwater management facilities shall be designed to honor natural drainage divides to the maximum extent practicable.
(e) Concentrated surface waters, including outflows from stormwater management facilities, shall not be discharged onto an adjoining developed property (such as any developed non-residential property, a residential lot less than three (3) acres or the improved portion of a residential lot three (3) acres or greater), unless a storm drainage easement has been recorded on the affected property or unless the discharge is into a well defined natural stream (i.e., incised channel with bed and banks) or an existing drainage system of adequate capacity. Such drainage easement(s) shall be obtained prior to approval of the stormwater management design plan and shall extend to the nearest recorded storm drainage easement, well-defined natural stream, or man-made stormwater facility, channel or pipe of adequate capacity.
(f) Stormwater drainage easements shall be extended where necessary to upstream property lines to permit future development reasonable access to on-site drainageways or drainage systems for connections.
(g) Surface runoff greater than three (3) cubic feet per second for the ten-year storm event that flows through lots shall be piped when average lot size is less than thirty thousand (30,000) square feet except that the program administrator may approve an open channel system where the preservation of a natural drainageway is desirable or the use of an open channel will not interfere with the use of the property. This requirement shall not apply to low-impact development sites designed in accordance with the requirements of subsection (e) of Section 2 of this chapter.
(h) Residential lots in which lot size is less than thirty thousand (30,000) square feet shall be graded in such a manner that surface runoff does not cross more than three (3) lots before it is collected in a storm sewer system or designed stormwater conveyance channel.

Section 4. Stormwater management plans.

(a) *Stormwater management concept plans.*
(1) All preliminary plans of subdivision and major site development plans shall provide a stormwater management concept plan describing, in general, how stormwater runoff through and from the development will be conveyed and controlled.
(2) The stormwater management concept plan must be approved prior to submission of a stormwater management design plan (as part of the construction or final site plan) for the entire development, or portions thereof.
(3) A copy of the approved stormwater management concept plan shall be submitted with the stormwater management design plan. The program administrator shall check the design plan for consistency with the concept plan and may require a revised stormwater management concept plan if changes in the site development proposal have been made.
(4) The stormwater management concept plan shall provide all appropriate information as identified in the Stormwater Management Design Manuals.
(5) The stormwater management concept plan shall include a hydrologic/hydraulic analysis of the downstream watercourse for all concentrated surface waters that will be discharged onto a developed property. The program administrator may request relocation of a stormwater outfall if other alternative discharge locations are practical.

(b) *Stormwater management design plans.*
(1) Except as provided for in Section 1(f)(2) (*exemptions*) of this chapter, no grading or building management design plan unless the applicant can demonstrate compliance with chapter.
(2) The applicant shall demonstrate that the project meets the criteria set forth in this chapter through submission of a stormwater management design plan. Failure of the applicant to demonstrate that the project meets this criteria, as determined by the program administrator, shall be reason to deny approval of the plan.
(3) A stormwater management design plan containing all appropriate information as specified in this chapter shall be submitted to the department of planning and community development in conjunction with the construction plan or final site plan.

(c) *Stormwater management design plan content*s.
The stormwater management design plan shall contain maps, charts, graphs, tables, photographs, narrative descriptions, explanations, and citations to supporting references as appropriate to communicate the information required by this chapter and the Stormwater Management Design Manuals and the Low-Impact Development Design Manuals. At a minimum, the stormwater management design plan shall contain the following:
(1) *General*

a. Description of the project, and proposed design, including how water quality, quantity and stormwater drainage requirements will be addressed.

b. Proposed erosion and sediment controls, and proposed temporary and permanent stormwater management facilities.

c. Project schedule, including a sequence of construction.

d. Maps depicting all pertinent stormwater management information necessary for review of the plan as identified in the Stormwater Management Design Manuals, including, but not limited to maps of the drainage area, soils and plan view of the development project.

(2) *Stormwater management facilities.*

a. Stormwater management facilities identified on a map, including details, plan, profile, cross sections, and other pertinent data necessary for review as identified in the Stormwater Management Design Manuals.

b. Comprehensive hydrologic and hydraulic design calculations, including all assumptions and criteria, for the pre-development and post-development conditions for the design storms specified in this chapter or the Stormwater Management Design Manuals.

c. If infiltration facilities are proposed, the location of existing and proposed wells and septic system drain fields shall be shown along with an analysis that supports the location of the infiltration facility in the soil type identified.

d. A geotechnical report with recommendations and earthwork specifications in accordance with requirements in the Stormwater Management Design Manuals. The geotechnical engineer shall acknowledge on the design plan that the geotechnical recommendations have been incorporated into the design of stormwater management facilities.

e. A landscaping plan describing the woody and herbaceous vegetative stabilization and management techniques to be used within and adjacent to the stormwater management facility in accordance with standards in the Stormwater Management Design Manuals.

f. Identification of all easements needed for inspection and maintenance of stormwater management facilities in accordance with specifications in the Stormwater Management Design Manuals.

g. A maintenance plan identifying the parts or components of the stormwater management facility that need to be maintained to ensure continued proper functioning of the facility. If the designated maintenance responsibility is with a party other than the County, then a maintenance agreement shall be executed between the responsible party and the County.

(3) *Low-impact development sites.*

a. Integrated management practices (IMPs) identified on a map and corresponding design details in accordance with the Low-Impact Development Design Manuals.

b. Hydrologic computations to determine low-impact development stormwater requirements in accordance with the Low-Impact Development Design Manuals.

c. Hydrologic evaluation and design details for supplemental conventional stormwater management facilities in the event that integrated management practices alone cannot meet site stormwater management requirements.

d. Identification of all storm drainage easements needed to establish locations of integrated management practices.

(4) *Stormwater drainage systems.*

a. Hydrologic and hydraulic design calculations, including calculations for overlot drainage systems.

b. Design specifications in accordance with the Stormwater Management Design Manuals.

c. Identification of all easements needed for inspection and maintenance of drainage systems in accordance with specifications in the Stormwater Management Design Manuals.

(d) *Stormwater management design plan approval.*

(1) A maximum of thirty (30) calendar days from the receipt of an application will be allowed for preliminary review of the application to determine if the application is complete. During this period, the application will be accepted for review, which will begin the sixty-day review period, or rejected for incompleteness. The applicant will be informed in writing of the information necessary to complete the application.

(2) The sixty-day review period begins on the day the complete stormwater management design plan is accepted for review. At this time an acknowledgment letter will be sent to the applicant. During the sixty-day review period, the program administrator shall either approve or disapprove the plan and communicate the decision to the applicant in writing. Approval or denial shall be based on the plan's compliance with this chapter and the Stormwater Management Design Manuals. In cases where modifications are required to approve the plan, the county shall have an additional sixty (60) days to review the revised plan from the initial and any subsequent resubmission dates. If the plan is approved, one copy bearing certification of such approval shall be returned to the applicant. If the plan is disapproved, the applicant shall be notified in writing of the reasons.

(3) All plans, profiles, and specifications shall be distributed to the appropriate county departments and/or state agencies for review and recommendation. Comments and recommendations shall be coordinated at the meeting of the technical review committee. The technical review committee shall review the plan for compliance with this chapter.

(4) The applicant or any aggrieved party authorized by law may appeal the program administrator's decision of approval or disapproval of a stormwater management design plan application within thirty (30) days after rendering of such decision by the program administrator, to the board of supervisors.

(e) *Conditions of approval.*

(1) The applicant shall comply with all applicable requirements of the approved plan.

(2) No substantive changes shall be made to an approved plan without review and written approval by the program administrator.

(3) No transfer, assignment, or sale of the rights granted by virtue of an approved plan shall be made unless a written notice of transfer is filed with the program administrator and the transferee certifies agreement to comply with all obligations and conditions of the approved plan.

(4) The stormwater management design plan's approval expires in one year from the date of approval unless a final plat is recorded or unless work has actually begun on the site. The recordation of a final plat for a section of a subdivision (or initiation of construction in a section) does not vest the approval of the stormwater management design plan for the

remainder of the subdivision. If the stormwater management design plan expires, the applicant shall file with the program administrator for reapproval of the stormwater management design plan.

(5) Three (3) sets of certified as-built plans, meeting the specifications documented in the Stormwater Management Design Manuals, shall be submitted to the program administrator upon completion of the project. Each as-built plan shall have a certification statement by a professional licensed in Virginia to perform such work.

(6) The applicant shall be responsible for implementing the approved plan, and may be required to conduct a monitoring program, if deemed necessary by the program administrator.

Sec. 21.5-5. Inspection and maintenance.

(a) *Inspections.*
(1) A preconstruction conference between the county, the applicant, and the person(s) performing the work shall be required.
(2) On-site inspections will be conducted by the county and the applicant in accordance with the Stormwater Management Design Manuals. Essential elements of such inspection shall include:

a. Inspection immediately following preliminary site preparation, including stripping of vegetation, stockpiling of soil, and construction of temporary stormwater management facilities.

b. Inspections during construction of the permanent stormwater management facilities.

c. Final inspection of the project to ensure that stormwater management facilities have been constructed in accordance with the approved stormwater management design plan and the Stormwater Management Design Manuals.

(3) All inspections pursuant to this section shall be documented by a written report or log containing dates and times of inspections and comments concerning verbal communications relating to the project.
(4) If, at any stage of the development, the county determines that the soil or other physical conditions on the site are not as stated or shown on the approved stormwater management plan, or the county determines that the storm drainage system or stormwater management facility is inadequate or not constructed as shown on the approved stormwater management design plan, the county may refuse to approve further work and the county may revoke existing permits or approvals until a revised stormwater management design plan has been submitted and approved.
(5) Final certification of compliance with the construction specifications and integrity of all storm drainage and stormwater management facilities and their appurtenant structures shall be provided on the as-built plan by a professional licensed in Virginia to perform such work.

(b) *Maintenance.*
(1) Responsibility for the operation and maintenance of the stormwater management facilities and storm drainage system, unless assumed by the County, shall remain with the property owner or an owner's association. All maintenance activities shall be in accordance with standard maintenance practices for stormwater management facilities and the Stormwater Management Design Manuals.
(2) If the designated maintenance responsibility is with a party other than the County, then a maintenance agreement and plan shall be executed between the responsible party and the County. The maintenance agreement shall be prior to or in conjunction with recordation of a plat or approval of the site plan.
(3) To ensure proper performance of the stormwater facility, the property owner or owner's association is responsible for inspecting and performing all necessary maintenance and repairs to the stormwater management facility in accordance with the approved maintenance plan and the Stormwater Management Design Manuals. The

responsible party shall keep written records of inspections and maintenance/repairs and make them available to the county upon request.

(4) The county shall notify the property owner or owner's association in writing when a determination has been made that the stormwater management facility is in disrepair or is not functioning as intended. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. If the responsible party fails to perform such maintenance and repair, the county shall have the authority to perform the work and recover the costs from the responsible party.

Section 6. Performance guarantee.

(a) No permits shall be issued unless the applicant furnishes a performance guarantee, in accordance with the current county security policy. This is to ensure that action can be taken by the county, at the applicant's expense, should the applicant fail, after proper notice and within the time specified, to initiate or maintain those measures identified in the approved stormwater management design plan. If the county takes such action upon such failure by the applicant, the county shall collect from the applicant the difference should the amount of reasonable cost of such action exceed the amount of the security held.

(b) A certified estimate of costs by the design engineer or land surveyor shall be used to verify costs for the purpose of determining the amount of the performance guarantee required by this section.

(c) The performance guarantee furnished pursuant to this section, or the unexpended or unobligated portion thereof, shall be returned to the applicant within sixty (60) days of the final acceptance of completion of the stormwater management facility by the program administrator. Final acceptance shall be defined as the time at which all clearing and grading on the land development site for roads, lots, and other ancillary activities such as recreational or institutional uses, as defined by the preliminary subdivision, construction, or site plan, on land which drains to the stormwater management facility has been completed and stabilized, and construction certification and as-built plans have been received.

Section 7. Exceptions.

(a) Exceptions to the provisions of this chapter may be granted by the program administrator, upon receipt of request for such exception in writing from the applicant or property owner. The request shall include descriptions, drawings, calculations and other information that is necessary to evaluate the waiver of stormwater management requirements.

(b) An exception may be granted provided that: (i) exceptions to the criteria are the minimum necessary to afford relief, (ii) economic hardship is not sufficient reason to grant an exception, (iii) reasonable and appropriate conditions shall be imposed as necessary upon an exception granted so the intent of the ordinance is preserved.

(c) The minimum requirements for stormwater management may be waived in whole or part provided at least one of the following conditions applies:

(1) It can be demonstrated that the proposed development is not likely to impair attainment of the objectives of this ordinance.

(2) The program administrator finds that meeting the minimum on-site requirements is not feasible due to the natural or existing physical characteristics of the site.

(3) The location of the land development project in the watershed is such that on-site stormwater management will result in increased flows on the main stream. The applicant or property owner must provide supporting hydrologic analysis in accordance with the Stormwater Management Design Manuals.

(4) The proposed land development project will not generate more than a ten-percent increase in the two-year and ten-year predevelopment peak discharge rates and the off-site receiving channel is adequate.

(5) An existing off-site stormwater management facility provides the required controls.

(6) An existing regional stormwater management facility provides the required controls, and the property owner agrees to a pro-rata share contribution in accordance with Section 2 of this chapter.

(7) A regional stormwater management facility has been identified for construction in the County Land Use Plan. The regional stormwater management facility will provide the required controls for the land development project, the property owner agrees to construct all necessary interim stormwater management controls deemed necessary by the program administrator, and the property owner agrees to a pro-rata share contribution in accordance with Section 2 of this chapter.

Section 8. Fees.

Fees shall be paid to the county in accordance with the Stafford County fee schedule to defray the cost of plan review, permit administration, and necessary inspections.

Section 9. Penalties and enforcement.

(a) If the program administrator determines that there is a failure to comply with the approved plan, notice of such failure shall be served upon the applicant or person responsible for implementing the plan by registered or certified mail or by delivery to the land development site. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed.
(b) Upon failure to comply within the time specified, the permit or approval may be revoked and the applicant or person responsible for implementing the plan shall be deemed to be in violation of this chapter.
(c) Any person who violates any provision of this chapter shall be guilty of a misdemeanor and shall be subject to a fine or imprisonment for each violation, or both, as provided for in Section 10.1-603.14 of the Code of Virginia, (1950) as amended.
(d) The program administrator may apply to the circuit court to enjoin a violation or a threatened violation of this chapter as provided for in section 10.1-603.14 of the Code of Virginia, (1950) as amended, without the necessity of showing that an adequate remedy of law does not exist.
(e) Without limiting the remedies, which may be obtained in this section, the program administrator may bring a civil action against any person or violation of this chapter, or any condition of the permit or approval. The action may seek to impose a civil penalty of not more than two thousand dollars ($2,000.00) for each violation as provided for in section 10.1-603.14 of the Code of Virginia, (1950) as amended.
(f) With the consent of the person who has violated or failed, neglected, or refused to obey this chapter or any condition of the permit or approval, the program administrator may issue an order against or to such person, for the payment of civil charges for violations in specific sums, not to exceed the limit specified in subsection (e) of this section as provided for in section 10.1-603.14 of the Code of Virginia, (1950) as amended. Such civil charges shall be instead of any appropriate civil penalty, which could be imposed under subsection (e) of this section.

Zoning Modifications for LID projects

1. Low impact management practices shall be permitted on residential building lots *(or within easements on residential lots)*

2. Curb and Gutter is required on lots less than (*ex. 30,00*) square feet in size except for low-impact development sites when curb and gutter shall not be required on lots greater than *(ex. 10,000)* square feet.

3. Sidewalks are required on lots less than (*ex. 15,000*) square feet except for low-impact development sites where sidewalks shall not be required.

4. Curb, gutter and sidewalks are required on all cluster subdivisions except for low impact development sites.

5. Low impact development sites shall provide engineered vegetated swales, in lieu of curb and gutters, along streets for stormwater conveyance and treatment.

6. Parking areas and driveways shall be paved with concrete, bituminous concrete or other materials except for low impact development area where pervious paving blocks and other maters may be allowed as approved.

7. Bioretention areas, filter strips and swales may be placed within parking lot landscape areas and may count toward landscaping requirements.